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Ames Research Center



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Silver Oxide Sorbent for Carbon Dioxide

A new sorbent which has been developed to remove carbon dioxide from the atmosphere of closed-cycle breathing systems utilizes silver oxide as the active ingredient. Unlike the materials in prevalent use (lithium hydroxide, soda lime, etc.) which must be discarded after exposure because recovery is impractical or impossible, the new material can be regenerated at least 20 times by heating at 250°C. Moreover, the sorbent is compatible with an environment of high humidity; up to 20 percent by weight of carbon dioxide (95% theoretical efficiency) can be absorbed.

The material is prepared from silver carbonate (60 to 90 wt-%), potassium hydroxide or carbonate (30 to 5 wt-%), and sodium silicate (30 to 5 wt-%). The potassium hydroxide is dissolved in a small amount of water and mixed with a solution of sodium silicate; silver carbonate powder is added to the mixture and then water is added to make a thin paste. The paste is extruded as pellets, which are partially dried by hot air as they travel on a moving belt to a container, and then dried overnight in an oven at 82°C. The pellets are activated by heating in a muffle furnace at 250°C for 2 hours, and then cooling in a desiccator.

Notes:

1. The following documentation may be obtained from:

National Technical Information Service
Springfield, Virginia 22151
Single copy price \$3.00
(or microfiche \$0.95)
Reference: NASA CR-114632 (N73-29054),
Study of CO₂ Sorbents for Extravehicular
Activity.

2. No additional documentation is available. Specific questions, however, may be directed to:

Technology Utilization Officer
Ames Research Center
Moffett Field, California 94035
Reference: B74-10053

Patent status:

NASA has decided not to apply for a patent.

Source: Gerald V. Colombo of
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